UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

In the Matter of the **FORD INTERNATIONAL SERVICES, INC.** **Ringwood Mines/Landfill Site** **(Ringwood, New Jersey)** Respondent Proceeding Under Sections 104 and 122 of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. §9604 and §9622	**ADMINISTRATIVE ORDER ON CONSENT** Index No. II-CERCLA-90108

I. JURISDICTION

1. The following administrative Order on Consent ("Order") is entered into between Ford International Services, Inc. ("Respondent") and the United States Environmental Protection Agency ("EPA") pursuant to the authority vested in the President of the United States under Sections 104 and 122 of the Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("CERCLA"), 42 U.S.C. §9604 and §9622, for which authority was delegated to the Administrator of EPA by Executive Order 12580 of January 23, 1987, and redelegated to the Regional Administrator of Region II. Pursuant to Section 106(a) of CERCLA, 42 U.S.C. §9606(a), the State of New Jersey has been notified of this Order.

2. Respondent agrees to undertake all actions required by the terms and conditions of this Order. Respondent consents to and will not contest the authority or jurisdiction of EPA Region II to issue this Order. The Parties agree that this Order and Attachment I, attached hereto, is consistent with CERCLA and the National Contingency Plan ("NCP") at 40 C.F.R. Part 300 and any amendments and modifications thereto.

II. PARTIES BOUND

3. This Order shall apply to and be binding on Respondent and its agents, contractors, consultants, receivers, trustees, successors and assigns.

4. No change in ownership or corporate status shall in any way alter the Respondent's responsibilities under this Order.

III. STATEMENT OF PURPOSE

5. In entering into this Order for the Ringwood Mines/Landfill Site (the "Site"), the mutual objectives of EPA and the Respondent are: (1) to implement for an initial period of five (5) years, a monitoring program consistent with the Record of Decision ("ROD"), signed September 29, 1988, and the requirements of this Order, and (2) to perform additional studies necessary to characterize the hydrogeologic regime of the Site. This Order encompasses only the EPA approved monitoring activities and hydrogeologic studies, and any EPA approved modifications or additions thereto. Any additional remedial action which EPA may require for the Site, including, but not limited to, excavation, treatment, containment, offsite disposal and any other remedial work is not subject to or affected by the provisions of this Order.

6. The activities conducted pursuant to this Order are subject to approval by EPA and shall be consistent with the NCP.

IV. FINDINGS OF FACT AND CONCLUSIONS OF LAW

7. The Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. §9601(21), and is a responsible party within the meaning of Section 107(a) of CERCLA, 42 U.S.C. §9607(a).

8. The Ringwood Mines/Landfill Site ("Site") is listed on the National Priorities List ("NPL") at 40 C.F.R. Part 300, Appendix B, of known and threatened releases, which has been issued pursuant to Section 105 of CERCLA, 42 U.S.C. §9605.

9. The hazardous substances referred to in this Order shall mean any substances included within the definition of "hazardous substance" in Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

10. Respondent (formerly known as Ringwood Realty Corporation) acquired certain properties comprising the Site in Ringwood, New Jersey from Pittsburgh Pacific Company on January 7, 1965. Respondent owned these properties until it transferred title to the properties in several transactions as set forth below:

Deed Date	Acreage	Grantee
11/21/69	87.310	High Point Homes, Inc.
5/14/70	207.97	Public Service Electric and Gas Co.
6/07/70	18.584	High Point Homes, Inc.
11/02/70	289.89	Ringwood Solid Wastes

		Management Authority
11/13/70	122.039	High Point Homes, Inc.
12/21/73	109.249	New Jersey Department of Environmental Protection
12/21/73	35.475	The Housing Operation With Training Opportunity, A New Jersey Corporation - Not for Profit

11. The Site has been used for the disposal of solid and hazardous waste. The Site is comprised of disposal areas, including but not limited to, open dumps, municipal landfills, abandoned mine shafts and pits; some of which were used for the disposal of hazardous substances. The Site includes the property discussed in paragraph 10, above, and the areal extent of contamination from the disposal areas.

12. Ground water is the major source of drinking water in Ringwood Borough. Potable water is provided through a municipal distribution system that utilizes deep bedrock wells and an artesian spring. Private commercial/residential wells are located adjacent to the Site.

13. The Site is located within the watershed of the Wanaque Reservoir which supplies drinking water to approximately 500,000 people. Surface water which drains the Site, mixes with water from other sources and then discharges to the Wanaque Reservoir approximately one mile south of the Site. There are no drinking water intakes from the Wanaque Reservoir within three miles of the Site.

14. Pursuant to Section 3013 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §6934, an Administrative Order on Consent ("ACO") was signed on March 16, 1984 by EPA Region II, whereby a remedial investigation ("RI") for the Site was funded by Ford International Services, Inc. and performed by its consultant, Woodward-Clyde Consultants ("WCC")

15. The RI for the Site was divided into three phases. The purpose of Phase I was to collect all existing data on the Site, consult the scientific literature and produce a geologic analysis of the area. A work plan for the Phase II investigation was produced from this effort. The Phase II investigation consisted of geophysical work, test pit excavations, monitoring well installations, sampling of test pits, monitoring wells, surface water and seeps. The Phase III work included additional monitoring well installations, and ground-water, surface water and test pit sampling.

16. In a letter dated January 12, 1987, EPA acknowledged completion by Respondent of the RI and satisfaction of the ACO.

17. A summary report of the phased RI entitled "Final Remedial Investigation Report" was completed by WCC in September, 1988.

18. Surficial paint sludge disposal locations were investigated by WCC in March and April, 1987. EP Toxicity leachate analyses from the paint sludge revealed lead values ranging from 6.8 mg/l to 178 mg/l. As a result, the sludge was classified as a hazardous waste, EP Toxic for lead.

19. On June 26, 1987, pursuant to 42 U.S.C. §9606, a unilateral Administrative Order, II - CERCLA-70102, was issued by EPA to Respondent to remove the surficial paint sludge from the Site.

20. In accordance with an EPA-approved work plan, the Respondent and its contractors excavated and removed 7,000 cubic yards of surficial paint sludge from four locations at the Site. The paint sludge was disposed of at Wayne Disposal Inc., a hazardous waste disposal facility in Belleville, Michigan. Paint sludge removal operations began in October, 1987 and were completed in February, 1988. Confirmatory, post-paint sludge removal sampling was conducted by Respondent in March, 1988.

21. A second unilateral Administrative Order, II-CERCLA-70101, was issued to Respondent by EPA on June 26, 1987 to conduct a feasibility study ("FS"). WCC was retained by Respondent to perform the FS. The FS which evaluated long-term remedial alternatives for the Site was completed by WCC and submitted to EPA in August, 1988.

22. Environ Corporation was retained by Respondent to conduct an endangerment assessment in order to evaluate any potential risk to public health and the environment posed by the Site. The endangerment assessment was completed in August, 1988 and was used in the evaluation of remedial alternatives presented in the FS.

23. The RI, FS and endangerment assessment reports were sent to the Ringwood Borough Library, which is the local information repository. The public comment period commenced on August 9, 1988 and ended September 6, 1988.

24. A public meeting was held on August 17, 1988 at which time EPA presented the results of the RI/FS along with the preferred remedial alternative for the Site.

25. On September 29, 1988 EPA issued a ROD concluding that water sampling to date has shown that no contamination is entering the Wanaque Reservoir from the Site. The ROD selected the Long Term Monitoring Alternative as the appropriate action at the Site.

26. The ROD selected an additional round of confirmatory soil sampling in Paint Sludge Location B with soil removal, if contamination was confirmed, and implementation of a long-term surface water and ground-water monitoring program for the Site.

27. The confirmatory sampling of Location B was performed by Respondent in December, 1988. Based on the results of confirmatory sampling conducted by Respondent, EPA determined that additional soil removal in Location B is not warranted. Respondent's letter report is attached herein as Attachment II.

28. The ROD documented that the selected remedy addresses the soil, surface water and ground-water media at the Site and is protective of human health and the environment.

29. Respondent has had an opportunity to confer with EPA and to state any objections Respondent may have had with respect to the contents of this Order.

30. EPA and Respondent recognize that the public interest is served by this Order.

V. DETERMINATION

31. Based On the foregoing **FINDINGS OF FACT AND CONCLUSIONS OF LAW** and the entire administrative record, the Regional Administrator of EPA Region II has determined that in order to protect public health and the environment, it is necessary that a long-term surface water and ground-water monitoring program be implemented to monitor any threatened release of hazardous substances from the Site and in order to act promptly if any release is detected.

VI. ORDER

32. Based on the foregoing **FINDINGS OF FACT AND CONCLUSION OF LAW** and **DETERMINATION**, it is hereby ordered and agreed that the Respondent shall act promptly to perform certain actions at the Site in accordance with the requirements and schedule specified in Attachment I which is incorporated in and made a part of this Order.

A. WORK TO BE PERFORMED

33. Respondent shall carry out the monitoring program described in Attachment I for a period of five years. Attachment I provides for (1) chemical analysis of soil, sediment and mine tailings to determine background concentrations of metals (the

"Background Investigation"), (2) a reevaluation of hydrogeologic data including applicable geophysical data to characterize the hydrogeologic regime at the Site ("the Hydrogeologic Characterization"), and (3) analysis of monitoring well, potable well and surface water samples.

34. Sampling frequency and sample parameters for each year of the five year period after the effective date of this Order shall be determined by EPA. EPA shall notify Respondent in writing of its determination. At the end of the five year monitoring program Respondent shall submit a report certifying that all Work has been completed in compliance with this Order. EPA shall review the report and any other information about the Site.

35. Respondent shall submit for EPA's review and approval a draft Geological Assessment report ("GA") which shall outline the results and conclusions of the background investigation and the hydrogeologic characterization performed pursuant to Attachment I.

36. EPA shall review and comment on the draft GA. Respondent shall modify the draft GA to address EPA's comments and shall submit the revised version to EPA within thirty (30) days after receipt of EPA's comments. When EPA determines that the draft GA is acceptable, EPA will notify the Respondent in writing of that determination. The GA as modified and approved by EPA shall be deemed to be fully incorporated in and part of this Order.

37. Work shall begin on sampling of new and existing monitoring wells in conformance with the schedule in Attachment I.

38. Sampling of ground-water monitoring wells, potable wells, and surface water shall be performed quarterly (four times) during the first year of monitoring in accordance with Attachment I. Quarterly sampling reports shall be submitted by Respondent to EPA, NJDEP and the Borough of Ringwood 90 days after completion of field sampling.

39. After the first year of sampling, Respondent shall submit to EPA a draft Monitoring Program Revaluation Report ("MPRR"). The draft MPRR shall include (1) analytical results of the previous year's surface water and ground-water sampling and (2) a report describing the hydrogeologic regime of the Site which shall incorporate results of the GA along with the hydrogeologic maps generated as a result of the previous year's sampling activities.

40. Within fourteen (14) days from the date of receipt of EPA's comments, Respondent shall submit the revised draft MPRR to EPA. EPA shall review the MPRR and provide comments in writing to the Respondent. Respondent shall modify the MPRR to incorporate EPA's comments. When EPA determines that the MPRR is acceptable, EPA will notify Respondent in writing of that determination. The MPRR as modified and approved by EPA, shall be deemed to be fully incorporated in and part of this Order.

41. EPA shall be the final arbiter in any dispute regarding the sufficiency of the GA and MPRR . EPA may modify them unilaterally after written notice to the Respondent of the required modifications and an opportunity for the Respondent to engage in informal discussions with EPA regarding such modifications.

42. After EPA approval of the MPRR, EPA will reevaluate groundwater and surface water monitoring to determine future sampling frequency and parameters. Sampling shall be performed no less than twice per year after the first year of this Order. Sampling parameters will be determined by EPA. Sampling reports shall be submitted after each sampling event by Respondent to EPA, NJDEP and the Borough of Ringwood.

B. QUALITY ASSURANCE/QUALITY CONTROL

43. All sampling analyses shall conform to EPA Quality Assurance/Quality Control procedures as directed by the EPA and in conformance with Part I, Chapter 1 and Section 1.3 respectively of the EPA publications entitled "Test Methods for Evaluating Solid Waste" (SW-846, November, 1986) or as updated, and "Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Environmental Monitoring", and any modifications and amendments thereto.

C. DESIGNATED REPRESENTATIVES, EPA INSPECTION AND ACCESS

44. Not later than five (5) business days after the effective date of this Order, Respondent shall select an individual to be known as the Facility Coordinator and shall notify EPA in writing of the name, address, qualifications, job title and telephone number of the Facility Coordinator. The Facility Coordinator shall be responsible for oversight of the implementation of this Order. He or she shall have technical expertise sufficient to oversee properly all aspects of the work pursuant to this Order. Respondent has the right to change its Facility Coordinator. Such change shall be accomplished by notifying EPA in writing at least five (5) business days before the change.

45. EPA will designate a Project Manager to monitor the Work at the Site and will notify the Respondent of such designation.

46. All activities required of Respondent under the terms of this Order shall be performed in accordance with prevailing professional standards by well-qualified persons possessing all necessary permits, licenses, and other authorizations required by federal, state, and local governments.

47. All employees and agents of the Respondent, who engage in activities pursuant to this Order shall, upon request, reasonably cooperate with EPA for any purpose related to investigations, response actions, environmental monitoring and/or enforcement proceedings conducted with respect to the Site. All contracts between the Respondent and its consultants and contractors shall specifically provide for their availability and cooperation with EPA.

48. Respondent shall use its best efforts to obtain in a timely manner such access to the Site and any other properties in order to carry out the requirements of this Order. This Order does not convey any rights of access to Respondent. If Respondent is unable to obtain needed access, Respondent shall notify EPA in writing. Pursuant to its statutory authority, EPA will assist Respondent in obtaining access.

D. REVIEWS TO ASSURE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

49. Pursuant to Section 121(c) of CERCLA, EPA "shall review [the] selected remedial action at the Site no less often than five (5) years after implementation of this Order to assure that human health and the environment are being protected by the remedial action being implemented."

50. Notwithstanding any provision of this Order, if EPA determines that further response action in accordance with Sections 104 or 106 of CERCLA, 42 U.S.C. §9604 or §9606, or any other applicable law, is appropriate at the Site, then EPA may take or seek to require that Respondent undertake such action.

51. If EPA determines that additional monitoring or investigatory action is needed at the Site, Respondent shall be provided with written notice and an opportunity to confer with EPA on any such work proposed and to submit written comments for the record.

E. REPORTING REQUIREMENTS

52. Respondent shall provide EPA with five (5) business days advance notice of monitoring well installations, if any, and on-site and off-site sampling activities.

53. Respondent shall provide EPA or its designated representative with duplicate and/or split samples collected in furtherance of monitoring and/or study activities performed with respect to the Site, if requested by EPA.

54. All data and information, including raw sampling, and other monitoring data, generated by Respondent or on behalf of Respondent, shall immediately be made available to EPA or its designated representatives. No such data or information shall be destroyed unless Respondent has been given written approval by the Director, Emergency and Remedial Response Division, EPA Region II.

55. All reports and other documents produced by Respondent and submitted to EPA in the course of implementation of this Order shall immediately be available to the public unless identified as confidential by Respondent and determined by EPA to merit confidential treatment, in accordance with 40 C.F.R. Part 2, Subpart B. In addition, EPA may release all such documents to NJDEP, and NJDEP may make those documents available to the public unless Respondent conforms with appropriate New Jersey law and regulations regarding confidentiality. No sampling, monitoring, hydrological or geological data shall be considered confidential.

F. NOTICES, COMMUNICATIONS AND DECISIONS

56. All work plans, technical reports and other documents required to be submitted to EPA under this Order shall be sent by certified mail or express delivery or hand delivered, return receipt requested, to the following addresses:

1 original 2 copies	Chief, New Jersey Compliance Branch Emergency and Remedial Response Division U.S. Environmental Protection Agency Region II 26 Federal Plaza, Room 747 New York, New York 10278 Attention: Ringwood Mines Project Manager
1 copy	Chief, New Jersey Superfund Branch Office of Regional Counsel U.S. Environmental Protection Agency 26 Federal Plaza New York, New York 10278

Attention: Ringwood Mines Attorney

3 copies

Chief, Bureau of Case Management
Division of Hazardous Waste Management
N.J. Department of Environmental Protection
401 East State Street
CN-028
Trenton, New Jersey 08625

Attention: Ringwood Mines Case Manager

57. Whenever, under the terms of this Order, notice is required to be given, a report or other document is required to be forwarded by one party to another, or any other written communication is required, the EPA representatives identified in paragraph 56, above, shall be the recipients unless EPA gives written notice of a change.

58. Written communications from EPA to Respondent shall be sent to the following individuals unless Respondent gives written notice of a change to EPA:

Jerome S. Amber
Principal Staff Engineer
Ford Motor Company
15201 Century Drive
Suite 608
Dearborn, Michigan 48120

Robert E. Costello
Senior Attorney
Ford Motor Company
Parklane Towers West, Suite 401
One Parklane Boulevard
Dearborn, Michigan 48126

59. Decisions by EPA relating to this Order, such as approvals, disapprovals, grants or denials of requests, work plans, specifications, schedules and work outputs shall be communicated in writing to Respondent by:

Chief
New Jersey Compliance Branch
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

60. No informal advice, guidance, suggestions or comments by EPA or NJDEP regarding reports, plans, specifications, schedules or any other writings submitted by Respondent shall be construed as relieving Respondent of its obligation to obtain the formal approvals which may be required by this Order.

G. SCHEDULE

61. All Work required under this Order and described in Attachment I shall be initiated and completed as soon as possible, even though maximum time periods for its completion is specified in the schedule in Attachment I to this Order.

62. Respondent shall use its best efforts to avoid or minimize delay or prevention of performance of its obligations under this Order. In the event of delay, Respondent shall provide written notification to EPA in accordance with Paragraph 65 of this Order.

H. FORCE MAJEURE

63. For purposes of this Order, force majeure shall mean any event arising from causes entirely beyond the control of Respondent and of any entity controlled by Respondent, including its contractors and subcontractors, which delays or prevents the performance of any obligation under this Order. Force majeure shall not include unanticipated or increased costs or expenses, financial incapacity, or nonattainment of the goals and standards set forth herein or in the Record of Decision, or in plans or the documents prepared by Respondent and approved pursuant to this Order.

64. When circumstances occur which may delay the completion of any phase of the Work or delay access to the Site or to any property on which any part of the Work is to be performed, whether or not caused by a force majeure, Respondent shall notify the EPA Project Manager orally of such circumstances within twenty-four (24) hours of their occurrence, or in the event of his or her unavailability, the Chief of the New Jersey Compliance Branch of the Emergency and Remedial Response Division of EPA Region II.

65. Within five (5) days of the event which Respondent contends is responsible for the delay, Respondent shall supply to EPA, in writing, an explanation of the cause of any actual or anticipated delay or noncompliance, the anticipated or actual duration of such delay, the measures taken and/or to be taken by Respondent to prevent or minimize the delay or correct the noncompliance, and the timetable for implementation of such measures. Such

notice shall be accompanied by all available pertinent documentation including, but not limited to, third party correspondence.

66. Failure to give timely oral and written notice to EPA in accordance with this section shall constitute a waiver of any claim of force majeure.

67. The time in which to comply with affected schedules pursuant to this Order and Attachment I may be extended by EPA as a result of a force majeure event and such extension shall not exceed the actual duration of the delay resulting from the force majeure event.

I. GENERAL PROVISIONS

68. Notwithstanding any other provision of this Order, EPA hereby retains all of its enforcement authority, information gathering, access and inspection authority under CERCLA, RCRA and any other applicable statutes.

69. Respondent shall retain, during the pendency of this Order and for a period of eight (8) years after its termination, all Work Plans, sample data, sampling reports, technical reports, and the report certifying completion of the Work.

70. All actions performed by Respondent pursuant to this Order shall be carried out in conformance with all applicable federal, state, and local laws, regulations, and requirements, including, but not limited to, the NCP and any amendments thereto.

71. Respondent shall be responsible for obtaining all necessary permits, licenses and other authorization.

72. In the event that any inability to obtain a permit or gain access results from circumstances or events beyond the control of Respondent and that delays the schedule pursuant to this Order and Attachment I, EPA will modify the schedule to reflect the delay in performance provided that notice is given to EPA as stated in the Force Majeure Section of this Order.

73. Neither the United States Government nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions by Respondent or Respondent's officers, directors, employees, agents, contractors, consultants, receivers, trustees, successors or assigns in carrying out any action or activity pursuant to this Order; nor shall the United States Government or any agency thereof be held

out as a party to any contract entered into by Respondent in carrying out any activities pursuant to this Order.

74. Nothing herein shall constitute or be construed as a satisfaction or release from liability for Respondent or Respondent's receivers, trustees, successors or assigns.

75. Nothing contained in this Order shall affect any right, claim, interest, defense, or cause of action of EPA and of the Respondent with respect to other parties. Upon completion of the Work, Respondent shall not be liable to other parties not signatories to this Order for claims of contribution regarding matters addressed in this Order.

76. Nothing contained in this Order, shall affect the right of EPA to enter into a Consent Decree, a Consent Order or to issue any Unilateral Order to Respondent or to any other party.

77. Respondent agrees not to make any claims pursuant to Sections 106(b)(2), 111 and 112 of CERCLA, 42 U.S.C. §9606(b)(2), §9611 and §9612, either directly or indirectly, for reimbursement from the Hazardous Substance Superfund for costs incurred in complying with this Order.

78. Nothing in this Order shall be construed to constitute preauthorization under Section 111(a)(2) of CERCLA, 42 U.S.C. §9611(a)(2), and 40 C.F.R. §300.25(d).

79. EPA will provide Respondent with five (5) days advance notice of all public meetings to be held by EPA with respect to the Site, unless a public meeting is necessitated by an emergency that makes five days advance notice impossible. Respondent shall have the opportunity to have a spokesperson at each public meeting.

80. This Order may be amended by mutual agreement of EPA and Respondent. Such amendments shall be in writing and shall have as the effective date that date on which such amendments are signed by EPA.

J. REIMBURSEMENT

81. Respondent agrees to reimburse EPA for any cost incurred by the United States Government under, or in connection with, the oversight contract or arrangement with respect to the issuance of this Order. After the end of each federal fiscal year in which such oversight costs are incurred by the United States Government, EPA will transmit to Respondent an accounting of all such costs that were incurred during the previous year together with a narrative description of the activities for which the costs were incurred. These accountings will include both direct and indirect costs. Respondent shall, within thirty (30) days of

receipt of each such accounting, remit a cashier's check or certified check for the amount of the costs, made payable to the "Hazardous Substance Superfund." Such payments shall contain a reference to the docket number of this Order and shall be mailed to the following address:

U.S. Environmental Protection Agency
Region II
Attention: Superfund Accounting
P.O. Box 360188M
Pittsburgh, PA 15251

Such payments shall also be accompanied by a letter of explanation including the name and address of the Respondent, the name of the Site, and EPA Region II.

X. ENFORCEMENT

82. Failure of Respondent to comply with any of the requirements of this Order may result in EPA taking the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. §9604.

83. If Respondent fails, without prior EPA approval, to comply with any of the requirements or time limits set forth in or established pursuant to this Order, Respondent shall pay a stipulated penalty to EPA in the amount indicated below for each day of noncompliance:

Days After Required Date	Stipulated Penalty
1 to 5 days	$ 500.00
6 to 10 days	$1,000.00
11 to 20 days	$2,000.00
21 days or more	$3,000.00

84. Any such penalty shall accrue as of the first day after the applicable deadline has passed, and shall continue to accrue until the noncompliance is corrected. Such penalties shall be due and payable ten (10) days following receipt of a written demand by EPA and shall be due and payable every thirtieth day thereafter. Payment of any such penalty to EPA shall be made by cashier's or certified check made payable to the "Hazardous Substance Superfund," with a notation of the docket number of this Order, and shall be mailed to the address set forth in paragraph 81. A letter stating the basis for the penalties, the names and addresses of the Respondent, the name of the Site and EPA Region II shall accompany each such payment.

85. Notwithstanding any other provision of this Order, EPA reserves its right to bring an action against Respondent (or any other responsible parties) pursuant to Section 107 of CERCLA, 42

U.S.C. §9607, for any costs incurred by EPA in connection with investigative or response activities at the Site.

86. Notwithstanding any other provision of this Order, EPA reserves its right to take any appropriate enforcement actions against Respondent pursuant to EPA's statutory authority.

87. Nothing herein shall preclude EPA from taking any additional removal or remedial actions or performing further monitoring and sampling activities, as EPA may deem necessary or appropriate.

88. Nothing contained in this Order shall constitute or be construed as an admission by Respondent with respect to any factual finding or legal determination. Neither this Order nor any action taken by Respondent pursuant to this Order shall constitute any evidence against Respondent, an admission of liability or responsibility by Respondent, a waiver by Respondent of any rights or defenses, nor an estoppel against Respondent with respect to any matter, act, claim, or thing related in any manner to the Site for any purpose other than in an action by EPA to enforce the terms of this Order. However, Respondent agrees not to contest the authority or jurisdiction of the Regional Administrator of EPA Region II to issue this Order, and also agrees not to contest the validity of this Order or its terms in any action to enforce its provisions.

L. TERMINATION

89. Notwithstanding any provision of this Order, EPA reserves the right to terminate this Order. If EPA makes a determination to terminate this Order, EPA shall confer with Respondent and provide Respondent with written notification.

90. When the Respondent concludes that the Work required under this ORDER for the five year monitoring program has been fully performed, the Respondent shall notify EPA by submitting a written report certifying that all the Work has been completed in full satisfaction of the ORDER. The report shall include the documentation of compliance with and completion of the requirements of this ORDER. The report shall also include the following certification statement signed by a responsible corporate officer on behalf of the Respondent:

> I certify that the information contained in or accompanying this report is true, accurate and complete. As to those identified portions of this report for which I cannot personally verify their truth and accuracy, I certify as the company official having supervisory responsibility for the person(s) who, acting under my direct instructions, made the

verification, that this information is true, accurate, and complete.

91. Any portion of the Work performed pursuant to this Order shall not be deemed complete until it has been reviewed by EPA and approved by EPA in writing.

M. EFFECTIVE DATE

92. This Order shall become effective on the third (3rd) business day after Respondent is notified that it has been signed by the Regional Administrator of EPA Region II, and all times for performance of actions or activities to be performed under this Order shall be calculated from this effective date.

U.S. ENVIRONMENTAL PROTECTION AGENCY

William J. Muszynski

Acting Regional Administrator
U.S. Environmental Protection Agency
Region II

8-25-89
DATE

The Respondent identified below has had an opportunity to confer with EPA to discuss this Order, Index No. II CERCLA- 90108. The Respondent hereby consents to the issuance of this Order and to its terms. Furthermore, the signatory identified below certifies that he or she is fully authorized to agree to the terms and conditions of this Order and to bind legally the Respondent represented by him or her.

Ford International Services, Inc.
(company name)

(signature) 8-22-89
DATE

John M. Rintamaki
(printed name of signatory)

Assistant Secretary
(title of signatory)

ATTACHMENT I

ENVIRONMENTAL MONITORING PROGRAM WORK PLAN
RINGWOOD MINES/LANDFILL SITE
RINGWOOD, NEW JERSEY

Prepared for:

FORD INTERNATIONAL SERVICES, INC.
DEARBORN, MICHIGAN

Date:
May 1989

Prepared by:

WOODWARD-CLYDE CONSULTANTS
201 WILLOWBROOK BOULEVARD
WAYNE, NJ 07470

Job Number:
84C40845

Woodward-Clyde Consultants

201 Willowbrook Boulevard
P.O. Box 290
Wayne, NJ 07470
201 785-0700
212 926-2878
Telex 133-541

11 May 1989
84C40845

Mr. Howard Orlean
U.S. Environmental Protection Agency
Region II
26 Federal Plaza, Room 737
New York, NY 10278

Subject: Ringwood Mines/Landfill Site
Environmental Monitoring Program Work Plan

Dear Mr. Orlean:

On behalf of Ford International Services, Inc., I am transmitting herewith three copies of the "Environmental Monitoring Program Work Plan". It is our understanding that this Work Plan will constitute Attachment I of the Administrative Order on Consent currently being negotiated. The enclosed Work Plan is a revision of the work plan transmitted to you on 28 February 1989 (letter from Jerome Amber of Ford International Services, Inc. to Howard Orlean).

If you have any questions or comments on the Work Plan then please contact the undersigned or Mr. Jerome Amber (313-322-4646).

Sincerely,

Christopher J. Motta, C.P.G.
Assistant Project Manager

W. Leigh Short, Ph.D., P.E.
Project Manager

CJM:WLS:am
AM89-192CL

1000019

ATTACHMENT I

ENVIRONMENTAL MONITORING PROGRAM WORK PLAN
RINGWOOD MINES/LANDFILL SITE
RINGWOOD, NEW JERSEY

Prepared for:

FORD INTERNATIONAL SERVICES, INC.
DEARBORN, MICHIGAN

Date:
May 1989

Prepared by:

WOODWARD-CLYDE CONSULTANTS
201 WILLOWBROOK BOULEVARD
WAYNE, NJ 07470

Job Number:
84C40845

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SECTION 1
INTRODUCTION

The Record of Decision (ROD) for the Ringwood Mines/Landfill Site in Ringwood Borough, Passaic County, New Jersey, was issued on 29 September 1988 by the Acting Regional Administrator of the United States Environmental Protection Agency, Region II. The ROD presents the selected remedial action for the Ringwood Mines/Landfill Site. The remedial action identified in the ROD is long-term monitoring. That monitoring is designed to address potential soil, surface water and ground water contamination at the site and to provide protection of human health and the environment. This work plan specifies actions that meet the requirements of the ROD.

The work plan addresses the requirements of the ROD by describing, in Section 2, the work associated with the first five years of environmental monitoring. Schedule and deliverables are discussed in Section 3 and quality control/quality assurance (QA/QC) is discussed in Section 4. Generally, QA/QC procedures will be consistent with those implemented as part of the Remedial Investigation/Feasibility Study and Paint Sludge Removal Program. Those procedures were approved by the USEPA, and as appropriate, they are deemed incorporated into this work plan and will be implemented as required by its scope of work.

SECTION 2
THE WORK PLAN

The workplan has been divided into nine tasks. Some of the tasks are divided further into subtasks. The purpose of defining tasks and subtasks is to assist in describing the scope of work, to budget the project and to monitor schedule.

TASK 1 - MONITORING WELL REHABILITATION AND SEALING

Monitoring wells scheduled for sampling as part of the environmental monitoring program will be rehabilitated to help ensure the integrity of samples from those wells. Rehabilitation will include redevelopment, inspection and, if necessary, replacement of protective hardware.

Redevelopment will be accomplished by pumping the wells in an attempt to clear sediment that may have accumulated in the wells and to remove potentially stagnant water. The volume of water pumped will depend on the yield. If there is sufficient yield, then each well will be pumped continually for at least one half hour at an optimal pumping rate.

The heavy duty protective hardware installed on the monitoring wells that were rehabilitated during Phase III of the Remedial Investigation has proven to be successful in eliminating vandalism and minimizing destruction by natural processes. The protective hardware on all monitoring wells will be reinspected and replaced if necessary.

Monitoring wells that have been vandalized or otherwise blocked or destroyed, such that rehabilitation efforts would not be cost effective, or that are not part of the environmental monitoring program, will be sealed according to state regulations. Currently, RW-1, OB-1 and OB-8 are scheduled to be sealed. The final list of wells to be sealed will be completed after the inspection. That list will be approved by the USEPA prior to sealing any wells.

WHAT ARE THEY?

TASK 2 - BACKGROUND INVESTIGATION

The background investigation will involve sampling/analysis of soil, sediment and mine tailings. The soil samples will be collected from locations that, based on reconnaissance data and hydrogeologic setting, are unimpacted by site conditions. Those locations will be in forested 'upland' areas of the site. The intent of soil sampling is to retrieve material from the C horizon (subsoil) which is the horizon just above the bedrock.

Because the locations preclude the use of heavy equipment for sampling, the C horizon may not be accessable. Soil will be excavated to the practical limit of the hand-held tools or until the C horizon is encountered at which point a sample will be retrieved. Three (3) background soil samples will be collected and analyzed for target compound list metals.

Sediment samples will be collected from the upper reaches (headwaters) of Park Brook and Mine Brook (near surface water sampling locations SW-13 and SW-14, respectively). An attempt will be made to collect similar sediment samples (based on grain size distribution) from each of the brooks. Four (4) sediment samples (two from Mine Brook and two from Park Brook) will be collected using hand-held sampling apparatus and analyzed for target compound list metals.

Mine tailings, if available from locations not associated with waste disposal activities, will be collected and analyzed for target compound list metals. Three (3) mine tailing samples will be collected. If possible, the mine tailings will be retrieved with hand-held tools, but a backhoe may be required to unearth the mine tailings.

All background sampling locations will be approved by the USEPA based on the site reconnaissance.

Task 2 is comprised of 3 subtasks. Those tasks include sampling, analysis and validation. The subtask numbers and descriptions are as follows:

Task 2.A - Background Investigation Sampling;
Task 2.B - Background Investigation Analysis; and
Task 2.C - Background Investigation Data Validation.

TASK 3 - HYDROGEOLOGIC CHARACTERIZATION

Hydrogeologic data, including geophysical data, collected during the Remedial Investigation will be reevaluated. The objective of the reevaluation is to integrate and summarize existing data on the hydrogeologic regime at the site. Information such as depth to bedrock, ground water elevation and geologic cross-sections will be included in the Geological Assessment Report (see Task 4). Geophysical data (terrain conductivity, resistivity and borehole) will be reevaluated and, to the extent that it provides information on the hydrogeologic regime at the site, the data will be presented and evaluated in the Geological Assessment Report.

TASK 4 - GEOLOGICAL ASSESSMENT REPORT

The Geological Assessment Report will summarize and present the results of the background investigation and the hydrogeologic characterization. Those results will be interpreted based on the constituents of potential concern previously identified in the Risk Assessment and other constituents detected in environmental samples collected during the Remedial Investigation. The results will also be incorporated in the Monitoring Program Reevaluation Report (see Task 9).

TASK 5 - POTABLE WELL SAMPLING AND ANALYSIS

A water use survey was conducted (during January and February, 1989) to provide information on ground water use in the vicinity of the site. The primary source of information was the Borough of Ringwood. The Health and Public Works Departments provided inspection reports and maps that contained (with variable degree of completeness) the following types of information:

- o well location;
- o well depth;
- o well yield (flow rate);
- o well owner;
- o well driller;
- o water use;
- o population served; and
- o analytical program (testing and frequency).

Well owners and/or operators were contacted (during January and February, 1989) to verify the data on file and to request permission for sampling which was granted without exception.

The well search performed as part of the Phase I investigation was compared to the data from the Borough of Ringwood and Ringwood State Park. The comparison was made to cross-reference information on potable wells in the vicinity of the site. The Phase I well search was based on well records on file with the NJDEP (Water Allocation).

The potable wells that are part of the environmental monitoring program are shown on Figure 1. Descriptions of those wells are presented in Table 1. The criteria for choosing the potable wells that are part of the monitoring program include distance from the site, and location relative to the site and inferred direction of ground water flow. An operable distance of approximately one-half

mile from the site was used; that is, potable wells that are greater than one-half mile from the site are not included in the monitoring program. Potable wells within one-half mile of the site were evaluated based on the inferred direction of ground water flow. The determination of which wells to include in the monitoring program required professional judgment based on knowledge of site conditions and ground water flow in deep bedrock.

The Mine Supply is maintained by the Borough of Ringwood and is located approximately 0.5 miles southeast of the site and along the Ringwood Creek just downstream of the Margaret King Avenue Bridge. The Mine Supply is a natural spring. Water from the spring was pumped into a cistern and subsequently pumped to a water tower on-site. The water from the spring supplied the residences and Borough Garage on-site, and the Borough Hall off-site. The Mine Supply was recently taken off line and replaced by the Windbeam Well System which is located about 2 miles southeast of the site. That system is tested monthly for bacteria, once or twice per year for lead and corrosivity, and twice per year for the A-280 compounds (volatile organic compounds - also including total PCBs).

The Mine Supply is available for emergency use. The Mine Supply is also tested monthly for bacteria, once or twice per year for lead and corrosivity, and twice per year for the A-280 compounds. Based on the status of the Mine Supply it is not included in the environmental monitoring program.

The environmental monitoring program for potable wells is presented herein and is summarized in Table 2. The parameter table is presented as Table 3. During the first year potable wells will be sampled four times (quarterly) and analyzed for target compounds list (TCL) metals and volatile and semi-volatile organic compounds, and cyanide. For planning purposes it is anticipated that during years two through five, the potable wells will be sampled twice per year (biannually). A reduction in the analytical parameters, sampling locations and sampling frequency for years two through five will be considered by the USEPA after the first year of quarterly sampling/analysis has been completed and the Monitoring Program Reevaluation Report is prepared (see Task 9).

Task 5 is comprised of 12 subtasks. Those subtasks include sampling, analysis and validation which will be implemented four times (quarterly) during the first year. The task numbers and descriptions are as follows:

Task 5.A.1 - First quarter potable well sampling;
Task 5.B.1 - First quarter potable well analysis;
Task 5.C.1 - First quarter potable well data validation;

Task 5.A.2 - Second quarter potable well sampling;
Task 5.B.2 - Second quarter potable well analysis;
Task 5.C.2 - Second quarter potable well data validation;

Task 5.A.3 - Third quarter potable well sampling;
Task 5.B.3 - Third quarter potable well analysis;
Task 5.C.3 - Third quarter potable well data validation;

Task 5.A.4 - Fourth quarter potable well sampling;
Task 5.B.4 - Fourth quarter potable well analysis; and
Task 5.C.4 - Fourth quarter potable well data validation.

TASK 6 - MONITORING WELL SAMPLING AND ANALYSIS

The ground water conditions described in the Remedial Investigation and evaluated in the Risk Assessment identify potential public health concerns. Those potential concerns are based on hypothetical exposure scenarios that assume ingestion, dermal contact and inhalation associated with ground water use. The constituents of potential concern identified in the Risk Assessment include some metals and benzene. Currently, ground water is not used on-site and is not a likely future water supply.

The determination of which monitoring wells to include in the monitoring program required professional judgment based on knowledge of site conditions. That determination was influenced by the following factors. The first factor is that a contaminant plume has not been identified at the site, strongly suggesting that a plume does not exist. The analytical data indicate the existence of scattered occurrence of low level contamination. As such, the analytical data only indicate the condition of ground water at the time of sampling. Because a plume has not been identified, interpolation between sampling points is not technically defensible, and the potential change in ground water conditions based on plume geometry and inferred direction and magnitude of ground water flow cannot be predicted.

The second factor is that there are no clearly identifiable sources of contamination on site and that the major potential source of contamination (i.e., the paint sludge) has been removed. The objective of using the monitoring wells to evaluate any potential change in release from sources is not likely to be achieved.

The third factor is that ground water is currently not used on-site and is not a likely future water supply. According to the ROD, the NJDEP will not permit installation of (potable) wells. In addition, as discussed under Task 5, the residences and Borough Garage on-site are serviced by the off-site Windbeam Well System. Future demands resulting from new on-site or near site residences and/or facilities would be met by the Windbeam Well System or other Borough operated (community) water supplies.

Ultimately the determination to include monitoring wells OB-9, OB-10, OB-11, OB-14A, OB-14B, OB-15B, RW-2 and RW-3 was based primarily on the results of the Risk Assessment. The Risk Assessment indicates that potential public health concerns are associated with the concentration of constituents observed in samples from those wells.

Although the Risk Assessment did not identify potential public health concerns associated with monitoring wells OB-3 and OB-13, they will also be included. Including those wells is a conservative approach which provides additional ground water sampling coverage in the southern part of the site.

Monitoring wells OB-3, OB-9, OB-10, OB-11, OB-13, OB-14A, OB-14B, OB-15B, RW-2 and RW-3 (Figure 2) will be sampled four times (quarterly) during the first year and analyzed for target compound list (TCL) metals and volatile and semi-volatile organic compounds, and cyanide. The sampling and analysis program is summarized in Table 2. The parameter table is presented as Table 3. For planning purposes it is anticipated that during years two through five, the monitoring wells will be sampled twice per year (biannually). A reduction in the analytical parameters, sampling locations and sampling frequency for years two through five will be considered by the USEPA after the first year of quarterly sampling/analysis has been completed and the Monitoring Program Reevaluation Report is prepared (see Task 9).

Task 6 is comprised of 12 subtasks. Those subtasks include sampling, analysis and validation which will be implemented four times (quarterly) during the first year. The subtask numbers and descriptions are as follows:

Task 6.A.1 - First quarter monitoring well sampling;
Task 6.B.1 - First quarter monitoring well analysis;
Task 6.C.1 - First quarter monitoring well data validation;

Task 6.A.2 - Second quarter monitoring well sampling;
Task 6.B.2 - Second quarter monitoring well analysis;
Task 6.C.2 - Second quarter monitoring well data validation;

Task 6.A.3 - Third quarter monitoring well sampling;
Task 6.B.3 - Third quarter monitoring well analysis;
Task 6.C.3 - Third quarter monitoring well data validation;

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Task 6.A.4 - Fourth quarter monitoring well sampling;
Task 6.B.4 - Fourth quarter monitoring well analysis; and
Task 6.C.4 - Fourth quarter monitoring well data validation.

TASK 7 - SURFACE WATER SAMPLING AND ANALYSIS

The surface water conditions described in the Remedial Investigation and evaluated in the Risk Assessment indicate that there are no significant potential public health and environmental concerns associated with the surface water at the site. To confirm those conditions, and to investigate background conditions, the surface water will be monitored at locations SW-3, SW-5, SW-7, SW-10 , SW-13, and SW-14 (Figure 1). Locations SW-3, SW-7 and SW-10 will serve as downstream monitoring stations for Mine Brook, Peters Mine Brook, and Park Brook, respectively. Locations SW-13 and SW-14 will serve as upstream monitoring stations for Park Brook and Mine Brook, respectively. Those locations presumably are not or have not been impacted by site activities (i.e., they are background locations). Sampling at location SW-5 will provide data on the water quality of surface water that flows through and/or originates at the site and ultimately discharges to the Wanaque Reservoir.

The first reason for sampling surface water is to confirm the continued acceptable quality of water that flows to the Wanaque Reservoir via the site. Based on 3 rounds of surface water sampling from 1984-1988, an unacceptable change in surface water quality is not anticipated. The second reason for sampling surface water is to monitor any potential change in site conditions as manifested in surface water quality. The third reason for sampling surface water is to observe potential changes that may indicate change in ground water quality. The hydrogeologic conditions at the site are such that flow in the streams is maintained by base flow which results from the discharge of ground water to streams. The streams flow primarily under base flow conditions, except during storm events when overland flow contributes to flow. During base flow

conditions surface water quality may be representative of ground water quality. The potential for change in water quality exists when ground water 'becomes' surface water. One potential change is volatilization as a result of turbulence associated with surface water flow which creates the potential for release of volatile compounds to the air from 'ground water' subsequent to its discharge to a stream. Another potential change is chemical precipitation of metals through oxidation. It is believed that surface water samples can serve as a qualitative indicator of ground water conditions.

The surface water monitoring program combined with the ground water monitoring program is designed to provide indications of any change in site conditions that could result in potential concern for human health and/or the environment. The potable well monitoring program is designed to complement the on-site monitoring program. The overall environmental monitoring program is designed to prevent any unacceptable exposure to site related constituents of potential concern.

The environmental monitoring program for surface water is presented herein and is summarized in Table 2. The parameter table is presented as Table 3. During the first year surface water will be sampled four times (quarterly) and analyzed for target compound list metals and volatile and semi-volatile organic compounds, and cyanide. For planning purposes it is anticipated that during years two through five, surface water will be sampled twice per year (biannually). A reduction in the analytical parameters, sampling locations and sampling frequency for years two through five will be considered by the USEPA after the first year of quarterly sampling/analysis has been completed and the Monitoring Program Reevaluation Report is completed (see Task 9).

Task 7 is comprised of 12 subtasks. Those subtasks include sampling, analysis and validation which will be implemented four times (quarterly) during the first year. The subtask numbers and descriptions are as follows:

Task 7.A.1 - First quarter surface water sampling;
Task 7.B.1 - First quarter surface water analysis;
Task 7.C.1 - First quarter surface water data validation;

Task 7.A.2 - Second quarter surface water sampling;
Task 7.B.2 - Second quarter surface water analysis;
Task 7.C.2 - Second quarter surface water data validation;

Task 7.A.3 - Third quarter surface water sampling;
Task 7.B.3 - Third quarter surface water analysis;
Task 7.C.3 - Third quarter surface water data validation;

Task 7.A.4 - Fourth quarter surface water sampling;
Task 7.B.4 - Fourth quarter surface water analysis; and
Task 7.C.4 - Fourth quarter surface water data validation.

TASK 8 - QUARTERLY REPORTING

Four quarterly reports will be prepared during the first year of the environmental monitoring program. Those reports will be submitted after the sampling, analysis and validation for each quarter is complete.

The quarterly reports will summarize and present the analytical results and data validation. Each report will tabulate the current quarterly results and the results from previous quarters.

TASK 9 - MONITORING PROGRAM REEVALUATION REPORT

The environmental monitoring program will be reevaluated after the first year to assure that it remains consistent with the objective of protecting human health and the environment. That reevaluation will be based on four complete rounds of surface water sampling/analysis and ground water sampling/analysis

from both monitoring wells and potable wells. In addition, the data from three rounds of surface water and ground water sampling/analysis associated with the Remedial Investigation, and the data from the Geological Assessment Report will be reviewed. Analytical data will be evaluated based on the evaluation criteria established in the Risk Assessment and apparent trends. The results of the monitoring program will be evaluated and a determination made whether a reduction in the analytical parameters, sampling locations and planned biannual sampling frequency is warranted.

The monitoring program reevaluation will be documented by submitting a report to USEPA after the first year of quarterly sampling. At that time, a recommendation will be made to modify the monitoring effort as concluded by the evaluation. Change, if any, in site conditions, land use and water supply will be considered when reevaluating the program. The report will include a revised environmental monitoring program work plan for years two through five consistent with the report recommendations.

SECTION 3
SCHEDULE AND DELIVERABLES

The first year schedule for the environmental monitoring program work plan is presented in Table 4. The schedule is a relative schedule; that is, an actual start date is not indicated. The work will begin upon USEPA approval of this work plan and execution of the Consent Order. The schedule for years two through five will be determined based on the results of the first year of quarterly sampling. Therefore a schedule for those years is not presented herein. For planning purposes it is anticipated that the sampling frequency during years two through five will be twice per year (biannually).

The first year deliverables for the environmental monitoring work plan are indicated in Table 4 and include: the Geological Assessment Report (Task 4) quarterly sampling/analysis reports (Task 8) and the Monitoring Program Reevaluation Report (Task 9). Original laboratory data associated with the Background Investigation (Task 2) and potable well, monitoring well and surface water analyses will be kept on file at Woodward-Clyde Consultants. The analytical data for the potable wells, monitoring wells and surface water generated during the Environmental Monitoring Program will be summarized and stored in a computer data base which will be made available to the USEPA on floppy disks.

SECTION 4
QUALITY CONTROL/QUALITY ASSURANCE

Although part of this work plan, laboratory, field and office quality control/ quality assurance protocol (standard operating procedures) are not detailed in this document. The procedures will be consistent with those implemented during the Remedial Investigation/Feasibility Study and Paint Sludge Removal Program. Those procedures were approved by the USEPA, and as such, they are deemed incorporated into this work plan and will be implemented as required by its scope of work. The original QA/QC plan was included as Attachment A to the Administrative Order on Consent (No. II-30131-40102). In accordance with more recent documents such as the USEPA "Guidance for Preparation of Combined Work/Quality Assurance Project Plan for Environmental Monitoring", and the NJDEP "Field Sampling Procedures Manual", and revised documents such as "Test Methods for Evaluating Solid Waste (SW-846)", the QA/QC procedures for the Ringwood Mines/Landfill Site were and continue to be modified as appropriate to assure necessary quality.

Specific QA/QC procedures regarding decontamination, splitting samples and data validation, requested by the USEPA, are addressed below.

4.1 DECONTAMINATION

The following types of field equipment will be used in implementing the work plan therefore they will have to be decontaminated: backhoe, hand-held digging tools (shovel, spade, chisel-head pry bar, pick axe), stainless steel trowels, pumps (submersible and surface), stainless steel bailers and stainless steel pans.

The bucket and arm of the backhoe will be decontaminated by either steam cleaning or high pressure/low volume washing with potable water. The hand-held digging tools will either be decontaminated using the procedures described for the backhoe or they will be manually washed (scrubbed) with potable water.

Submersible pumps will be cleaned by an external wash (scrub) of the pump, hose and cables with a soap and potable water solution followed by a potable water rinse. Then a minimum of 20 gallons of potable will be flushed through the pump and hose assembly. The surface pump will use new and dedicated tubing for each well, therefore, decontamination will not be required. However, the tubing will be washed (scrubbed) externally with a soap and water solution followed by a potable water rinse. Then the tubing will be flushed internally with potable water.

Stainless steel trowels, bailers and pans will be laboratory cleaned as follows:

1. Non-phosphate soap and potable water wash;
2. Potable water rinse;
3. Distilled/deionized water rinse;
4. Ten percent nitric acid rinse* (trace metal or higher grade HNO_3 diluted with distilled/deionized H_2O);
5. Distilled/deionized water rinse*;
6. Acetone (pesticide grade) rinse**;
7. Total air dry or pure nitrogen blow out**; and
8. Distilled/deionized water rinse**.

* Only if sample is to be analyzed for metals.

** Only if sample is to be analyzed for organics.

The trowels, bailers and pans will be dedicated (i.e., one per soil or water sample).

4.2 SPLITTING SAMPLES

Soil and sediment samples that are scheduled to be split with the USEPA will be temporarily stored and homogenized in dedicated stainless steel pans. The extent of mixing required will depend on the nature of the sample and will be done

to achieve a consistent physical appearance. Once mixing is complete, the sample will be divided in half and the laboratory containers will be filled by scooping sample material alternately from each half.

Splitting of water samples (potable wells, monitoring wells, and surface water) will be accomplished by alternately filling laboratory containers from the same sampling device for each parameter. Samples for volatile organic analysis from monitoring wells will be filled from the same bailerful whenever possible and will be the first set of containers filled.

The USEPA will provide its own sample containers, blank samples, preservatives, sample shuttles, chain-of-custody forms, and airbill (if necessary).

4.3 DATA VALIDATION

The analytical data will be validated based on the procedure contained in the USEPA documents entitled, "Laboratory Data Validation, Functional Guidelines for Evaluating Organic Analysis" (1 February 1988 or as updated), "CLP Organic Data Review and Preliminary Review" (SOP No. HW-4, Revision 3, 6 November 1987 or as updated), and "Evaluation of Metals Data for the Contract Laboratory Program" (SOP No. HW-2, Revision 7, February 1988 or as updated).

The above referenced documents will serve as guidance rather than checklists because the reporting format from General Testing will be its commercial format which is similar to the CLP format without some of the supporting documentation. The USEPA has approved and accepted similar formats for all of the prior Remedial Investigation and Paint Sludge Removal Program analytical data. Therefore, a similar format will be reported for the analytical data generated as part of the environmental monitoring program work plan.

The type of validation described above was done for the final round of analytical data from the Remedial Investigation. The results of the validation were reported in the Final Remedial Investigation Report.

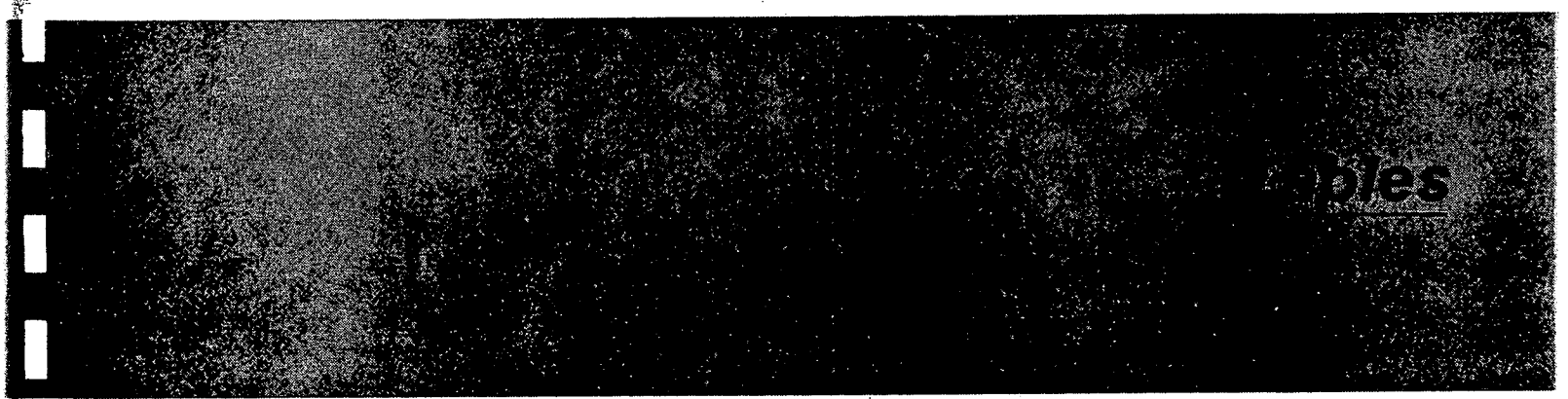

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TABLE 1

DATA SUMMARY FOR POTABLE WELLS
ASSOCIATED WITH THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Well Identification Number[1]	Facility Name or Homeowner Name	Average Population Served per Day	Date Drilled	Depth of Well (feet)	Depth to Bedrock (feet)	Gallonage (G.P.M.)	Comments
PW-287-MKA	Daret, Inc.	50	May 1972	215	57	20	Water used for drinking, washing sewerage, and manufacturing.
PW-33-DD	Daret, Inc.	100	--	87	--	--	Water used for drinking, washing, sewerage, and manufacturing.
PW-297A-MKA	Hall Manufacturing	30	Dec 1970	120	22	35	Water used for drinking, washing, sewerage, and manufacturing.
PW-297B-MKA	Hall Manufacturing	30	Nov 1978	150	20	25	Water used for drinking, washing, sewerage, and manufacturing.
PW-MKA	Church of the Good Shepherd	40	--	--	--	--	Water used for drinking, washing and sewerage.
PW-341-MKA	M.C. Miller Comp.	12	Oct 1981	510	12	4	Water used for drinking, washing and sewerage.
PW-325-MKA	Mr. A. Gibbons	2	Oct 1969	215	26	2.5	Household water use.
PW-331-MKA	Mr. E. Muronoff	--	--	--	--	--	Household water use.
PW-1311-SR	Green Residential Center	47	--	--	--	--	Water used for drinking, washing and sewerage.
PW-41-MKA	Mr. J. Torres	--	--	--	--	--	Household water use.
PW-319-MKA	Mr. S. Miller	2	Dec 1982	245	20	15	Household water use.

NOTES:

(1) Potable wells are designated with 'PW'. The PW is followed by the street number of the facility or house which is followed by an abbreviation of the street name: MKA = Margaret King Avenue; DD = Daret Drive; SR = Sloatsburg Road. If two wells are located at the same street address, then 'A' and 'B' designations follow the street number. If the facility does not have a street number, then a number is not entered after 'PW.'

(2) G.P.M = gallons per minute

TABLE 2
SUMMARY OF THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Sampling Location[1]	Description	Parameters[1]	Sampling/Analysis Frequency (years)	
			year one	years two through five[1]
SW-3	Downstream reach of Mine Brook	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
SW-5	Ringwood Creek just upstream of its confluence with the Wanaque Reservoir	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
SW-7	Downstream reach of Peters Mine Brook	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
SW-10	Downstream reach of Park Brook	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
SW-13	Upstream reach of Park Brook	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
SW-14	Upstream reach of Mine Brook	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)

TABLE 2 (continued)
SUMMARY OF THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Sampling Location[1]	Description	Parameters[1]	Sampling/Analysis Frequency (years)	
			year one	years two through five[1]
OB-3	Bedrock monitoring well in Study Area III	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
OB-9	Overburden monitoring well adjacent to the O'Connor Disposal Area	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
OB-10	Overburden monitoring well in Ringwood State Park	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
OB-11	Fill monitoring well in Study Area I	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
OB-13	Bedrock monitoring well in Study Area III	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)

TABLE 2 (continued)
SUMMARY OF THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Sampling Location[1]	Description	Parameters[1]	Sampling/Analysis Frequency (years)	
			year one	years two through five[1]
OB-14A	Fill monitoring well in the O'Connor Disposal Area	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
OB-14B	Overburden monitoring well in the O'Connor disposal area	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
OB-15B	Overburden well in former Paint Sludge Location A	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
RW-2	Bedrock monitoring well near the Cannon Mine shaft and Municipal Landfill	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
RW-3	Bedrock monitoring well in Study Area I	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)

TABLE 2 (continued)
SUMMARY OF THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Sampling Location[1]	Description	Parameters[1]	Sampling/Analysis Frequency (years)	
			year one	years two through five[1]
PW-287-MKA	Potable well for Daret, Inc., located at 287 Margaret King Avenue	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-33-DD	Potable well for Daret, Inc., located at 33 Daret Drive	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-297A-MKA	Potable well for Hall Manufacturing located at 297 Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-297B-MKA	Potable well for Hall Manufacturing located at 297 Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-MKA	Potable well for the Church of the Good Shephered located on Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)

TABLE 2 (continued)
SUMMARY OF THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Sampling Location[1]	Description	Parameters[1]	Sampling/Analysis Frequency (years)	
			year one	years two through five[1]
PW-341-MKA	Potable well for the M.C. Miller Comp located at 341 Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-325-MKA	Potable well for the Gibbons Residence located at 325 Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-331-MKA	Potable well for the Muronoff Residence located at 331 Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-1311-SR	Potable well for the Green Residential Center located at 1311 Sloatsburg Road	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)
PW-41-MKA	Potable well for the Torres Residence located at 41 Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)

TABLE 2 (continued)
SUMMARY OF THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Sampling Location[1]	Description	Parameters[1]	Sampling/Analysis Frequency (years)	
			year one	years two through five[1]
PW-319-MKA	Potable well for the Miller Residence located at 319 Margaret King Ave	Target compound list metals, target compound list volatile and semi-volatile organic compounds, and cyanide.	0.25 (quarterly)	0.5 (biannual)

NOTES:

1. The analytical program will be reevaluated after each year to determine the parameters, sampling locations and sampling frequency for the forthcoming year. For planning purposes it is anticipated that during years two through five the sampling frequency will be twice per year (biannually).

TABLE 3
PARAMETER TABLE FOR THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

Parameter	Analytical Method		Preservation		Holding Time		Volume		Container Type	
	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water
Aluminum	7020	7020	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Antimony	7040	7040	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Arsenic	7060	7060	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Barium	7080	7080	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Beryllium	7090	7090	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Cadmium	7130	7130	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Calcium	7140	7140	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Total Chromium	7190	7190	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Hexavalent Chromium	--	7197	--	cool, 4°C	--	24 hrs	--	40 oz	--	++
Cobalt	7200	7200	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Copper	7210	7210	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Iron	7380	7380	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Lead	7421	7421	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Magnesium	7450	7450	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Manganese	7460	7460	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Mercury	7471	7470	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Nickel	7520	7520	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Potassium	7610	7610	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Selenium	7740	7741	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Silver	7760	7760	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Sodium	7770	7770	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Thallium	7840	7840	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Tin	7870	7870	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Vanadium	7910	7910	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++
Zinc	7950	7950	cool, 4°C	HNO_3 to pH<2	6 mos	6 mos	*	**	+	++

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TABLE 3 (continued)
PARAMETER TABLE FOR THE ENVIRONMENTAL MONITORING PROGRAM
RINGWOOD MINES/LANDFILL SITE

	Analytical Method		Preservation		Holding Time		Volume		Container Type	
Parameter	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water
Total Cyanide	N/A	9010	N/A	cool, 4°C, NaOH to pH >12	N/A	14 days	N/A	1 qt	N/A	plastic
Target Compound List Volatile Organic Compounds	N/A	8240	N/A	cool, 4°C HCl to pH<2	N/A	14 days	N/A	2.7 oz	N/A	glass vial with teflon lined septum cap
Target Compound List Acid Extractable Organic Compounds	N/A	8270	N/A	cool, 4°C	N/A	7 days extraction 40 days from extraction	N/A	128 oz	N/A	amber glass with teflon lined cap
Target Compound List Base/Neutral Extractable Organic Compounds	N/A	8270	N/A	cool, 4°C	N/A	7 days extraction 40 days from extraction	N/A	128 oz	N/A	amber glass with teflon lined cap

Notes: * = sixteen ounces for metals
** = thirty-two ounces for metals
+ = wide-mouth glass
++ = plastic
N/A= soil will not be tested for parameter indicated.

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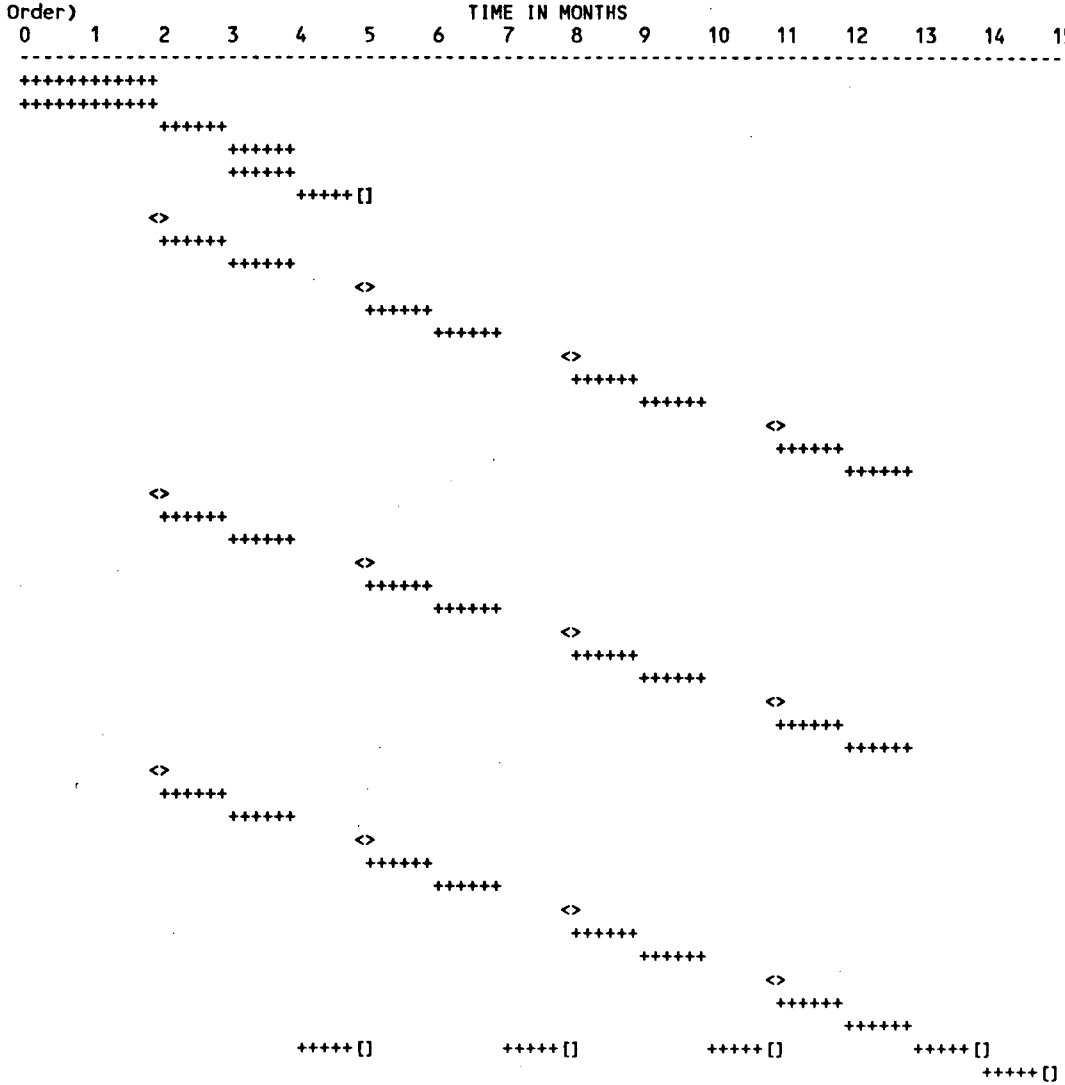
TABLE 4

FIRST YEAR SCHEDULE
FOR THE ENVIRONMENTAL MONITORING PROGRAM WORK PLAN
RINGWOOD MINES/LANDFILL SITE

(work plan approval and execution of Order)

TIME IN MONTHS



TASK NO.	DESCRIPTION
1	MONITORING WELL REHABILITATION AND SEALING
2.A	BACKGROUND INVESTIGATION SAMPLING
2.B	BACKGROUND INVESTIGATION ANALYSIS
2.C	BACKGROUND INVESTIGATION DATA VALIDATION
3	HYDROGEOLOGIC CHARACTERIZATION
4	GEOLOGICAL ASSESSMENT REPORT
5.A.1	FIRST QUARTER POTABLE WELL SAMPLING
5.B.1	FIRST QUARTER POTABLE WELL ANALYSIS
5.C.1	FIRST QUARTER POTABLE WELL DATA VALIDATION
5.A.2	SECOND QUARTER POTABLE WELL SAMPLING
5.B.2	SECOND QUARTER POTABLE WELL ANALYSIS
5.C.2	SECOND QUARTER POTABLE WELL DATA VALIDATION
5.A.3	THIRD QUARTER POTABLE WELL SAMPLING
5.B.3	THIRD QUARTER POTABLE WELL ANALYSIS
5.C.3	THIRD QUARTER POTABLE WELL DATA VALIDATION
5.A.4	FOURTH QUARTER POTABLE WELL SAMPLING
5.B.4	FOURTH QUARTER POTABLE WELL ANALYSIS
5.C.4	FOURTH QUARTER POTABLE WELL DATA VALIDATION
6.A.1	FIRST QUARTER MONITORING WELL SAMPLING
6.B.1	FIRST QUARTER MONITORING WELL ANALYSIS
6.C.1	FIRST QUARTER MONITORING WELL DATA VALIDATION
6.A.2	SECOND QUARTER MONITORING WELL SAMPLING
6.B.2	SECOND QUARTER MONITORING WELL ANALYSIS
6.C.2	SECOND QUARTER MONITORINGE WELL DATA VALIDATION
6.A.3	THIRD QUARTER MOINTORING WELL SAMPLING
6.B.3	THIRD QUARTER MONITORING WELL ANALYSIS
6.C.3	THIRD QUARTER MONITORING WELL DATA VALIDATION
6.A.4	FOURTH QUARTER MONITORING WELL SAMPLING
6.B.4	FOURTH QUARTER MONITORING WELL ANALYSIS
6.C.4	FOURTH QUARTER MONITORING WELL DATA VALIDATION
7.A.1	FIRST QUARTER SURFACE WATER SAMPLING
7.B.1	FIRST QUARTER SURFACE WATER ANALYSIS
7.C.1	FIRST QUARTER SURFACE WATER DATA VALIDATION
7.A.2	SECOND QUARTER SURFACE WATER SAMPLING
7.B.2	SECOND QUARTER SURFACE WATER ANALYSIS
7.C.2	SECOND QUARTER SURFACE WATER DATA VALIDATION
7.A.3	THIRD QUARTER SURFACE WATER WELL SAMPLING
7.B.3	THIRD QUARTER SURFACE WATER ANALYSIS
7.C.3	THIRD QUARTER SURFACE WATER DATA VALIDATION
7.A.4	FOURTH QUARTER SURFACE WATER SAMPLING
7.B.4	FOURTH QUARTER SURFACE WATER ANALYSIS
7.C.4	FOURTH QUARTER SURFACE WATER DATA VALIDATION
8	QUARTERLY REPORTING
9	MONITORING PROGRAM REEVALUATION REPORT

[]=DELIVERABLE
<>=QUARTERLY SAMPLING EVENT

Figures